

LPC# 031 009 0001 Cook County
Arlington Heights Municipal Landfill - Arlington Heights
ILD 984 781 526
SF/HRS

Site Reassessment



Prepared by:
Office of Site Evaluation
Division of Remediation Management
Bureau of Land

SIGNATURE PAGE

Title: CERCLA Site Reassessment for Arlington Heights Municipal Landfill

Preparer: Jessica Miller, Project Manager, Office of Site Evaluation,
Illinois Environmental Protection Agency




Signature

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Date

Approval: David Brauner, Site Assessment Manager, United States Environmental
Protection Agency, Region 5



Signature

8/23/18

Date

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**CERCLA
SITE REASSESSMENT**

for:

**ARLINGTON HEIGHTS MUNICIPAL LANDFILL
ARLINGTON HEIGHTS, ILLINOIS
ILD 984781526
LPC# 0310090001**

**PREPARED BY:
ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
BUREAU OF LAND
DIVISION OF REMEDIATION MANAGEMENT
OFFICE OF SITE EVALUATION**

August 23th, 2018

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Section 1.0 Introduction

On January 26, 2017, the Illinois Environmental Protection Agency's (Illinois EPA) Office of Site Evaluation (OSE) was tasked by the United States Environmental Protection Agency (U.S. EPA) Region V to conduct a Site Reassessment (SR) at the Arlington Heights Municipal Landfill (AHML) site in Arlington Heights, Cook County, Illinois. The AHML site is located near the northern limits of Arlington Heights in Cook County. (Figure-1). The AHML site occupies approximately 56-acres of land located within portions of the NW¼ and SW¼ of Section 6, Township 42 North, Range 11 East of the Third Principle Meridian. The geographical coordinates for a centrally located position within the site is 42.144442° N (latitude) and 87.997612° W (longitude).

The property was operated by the Village of Arlington Heights (Village) as a municipal landfill from approximately 1968 to 1974. Additional construction and demolition material from the Village was placed on the property until sometime around closure. The landfill was closed by the Illinois EPA in 1989. In 1993, construction began on a 9-hole golf course (Nickol Knoll Golf Course) that currently occupies the former landfilling operational area of the property. The entrance to the property/golf course is located at the end of W. Happfield Drive, just west of N. Kennicott Avenue.

The Site Reassessment is performed under the authority of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) commonly known as Superfund. Current U.S. EPA policy stipulates that a Site Reassessment be conducted to determine the current status of the AHML site. The Site Reassessment will consist of an evaluation of recent information to determine if further Superfund investigations are warranted. The Site Reassessment will supplement previous work and is not intended to replace previous CERCLA assessments.

The Site Reassessment is designed to evaluate recent information that will help determine if the site qualifies for possible inclusion on the National Priorities List (NPL) or should receive a No Further Remedial Action Planned (NFRAP) designation. At the conclusion of the reassessment process Illinois EPA will recommend that the site be given a NFRAP designation, receive further Superfund investigations, or referred to another state or federal cleanup program.

The AHML site was initially placed on the Superfund Enterprise Management System (SEMS), formerly the Comprehensive Environmental Response, Compensation, and Liability Information System or CERCLIS on January 28, 1986, as a result of a discovery action initiated by the State of Illinois. Three Preliminary Assessments (PAs) were conducted by the Illinois EPA in 1986, 1987, and 1990. A contractor for the U.S. EPA conducted a Site Inspection (SI) in October 1987. In September 1995, a Focused Site Inspection Prioritization (FSIP) Assessment was completed which evaluated two pathways not previously sampled and documented observed releases to groundwater and surface water. Sampling for the FSIP took place in April and May of 1993. A more detailed description of the CERCLA investigative history can be found in Section 2.3.

The Site Reassessment report will describe current site conditions and illustrate how the site has changed since the completion of the 1995 FSIP. This report will contain a summary of existing information that will include site history, current site conditions, evaluate past analytical data, and evaluate past remedial activities. The Site Reassessment will also support emergency response or time-critical removal activities if they are warranted.

Section 2.0 Site Description and History

Section 2.1 Site Description

The AHML site consists of 56-acres of property located within the northern section of Arlington Heights, IL, approximately 0.25-miles north of Dundee Road and west of Kennicott Avenue. (Figure-2). The Nickol Knoll Park is located on the property which contained the landfill. A 9-hole golf course known as Nickol Knoll Golf Course has been constructed on the property along with a bike/walking trail and a baseball diamond. The address for the golf course is 3800 N. Kennicott Ave. The site is located in the NW¹/₄ and SW¹/₄ of Section 6, Township 42 North, Range 11 East of the Third Principle Meridian. The geographical coordinates for a centrally located position within the site is 42.144442° N (latitude) and -87.997612° W (longitude).

The site is bounded to the east by an abandoned portion of N. Kennicott Ave., to the north by W. Nichols Road, to the west by a bike path, and to the south by industrial/commercial

facilities (Figure-2). Property use near the AHML site is a mixture of industrial/commercial, recreational, and residential use. Industrial/commercial properties are located primarily west and south of the AHML site, while residential properties are located within 100-feet north and east of the site. No schools or day care facilities are located within 200-feet of the site. Using 2010 block population census data, the population within one mile of the site is approximately 26,096 individuals.

The AHML site contains Nickol Knoll Park, Nickol Knoll Golf Course, two large public water supply holding tanks, and a fire training building (Figure-3). One of Arlington Heights emergency backup wells, public well #13, is located on site. Well #13 is 1,795-feet deep and is regularly maintained but would only be used if water from the city's permanent drinking source, Lake Michigan, was unavailable. A large pond is located on the golf course in the northwest section of the property. Over flow from the pond discharges to Buffalo Creek located near the northwest portion of the site. Buffalo Creek flows north and then east for 7.8-miles before discharging into the Des Plaines River. The majority of the area that historically received waste is overlain by the golf course.

The topography of the area surrounding the site would be characterized generally as flat or gently sloping. The site itself rises much higher than the surrounding area. As part of the closure plans for the landfill, two feet of compacted clay was placed on the fill area, followed by five feet of traffic compacted soil, followed by four inches of top soil. During construction of the golf course, an additional 1.5 million cubic yards of soil was used to cover the site. Cover material ranges from 5-80 feet thick throughout the site. The highest point on the site is approximately 76-feet above the northwest corner. Currently, the surface of the site has a well-established vegetative surface, no waste material is exposed, and there are no visible leachate seeps.

Runoff from the site flows radially in all directions as the area is mounded in shape due to landfilling and contouring of the site during installation of the landfill cap and construction of the golf course. A large pond located in the northwest corner of the site receives runoff from a portion of the golf course. Overflow from the pond discharges to Buffalo Creek. Due to the urban setting of the site, runoff from other portions of the site is managed by storm water sewer

systems. The greatest degree of potential residential exposure to runoff from the site would be on the east side.

The regional subsurface geology for the area consists of approximately 100-150 feet of glacial drift overlying Silurian age dolomitic bedrock formations. The glacial drift consists of the Wadsworth Till Member of the Wedron Formation, which is characterized by mostly gray clayey and silty clayey till with local lenses of sand and silt ([ISGS, 1979](#)). The Silurian age dolomite underlying the glacial drift ranges in thickness from approximately 230-500 feet in northern Illinois and is classified into the Alexandrian and Niagaren Series ([Willman, 1971](#)). The two series are broken into five separate dolomite formations.

Site specific information from on-site monitoring well soil boring logs, ranging from 2-48 feet, indicate the glacial drift consists of predominantly clay till with lenses of sand, silt, and gravel ([Illinois EPA BOL File, 2017](#)). A fine to coarse grained sand and gravel unit within the clay till was encountered anywhere from 6-feet to 44-feet. Sand thicknesses ranged from 1.5-feet to 12-feet. The sand unit appeared to be continuous throughout the site but was present at varying depths. Groundwater was present within the sand unit. However, a definitive groundwater flow direction could not be established based on the water levels present in the wells.

Groundwater can be obtained from four major aquifers in the region: (1) sand and gravel lenses within the glacial drift; (2) the Silurian dolomite aquifer; (3) the Cambrian-Ordovician aquifers, which include the Ironton-Galesville and Glenwood-St. Peter Sandstones; and, (4) the Mt. Simon Sandstone and the basal sandstone of the Eau Claire Formation ([Willman, 1971](#)).

Groundwater within the shallow sand and gravel aquifers may be used as a potable source; however, the sand and gravel deposits are regionally discontinuous, have limited yields, and are more susceptible to contamination. The second uppermost Silurian dolomite aquifer is present at depths greater than 100-feet. Groundwater within the Silurian dolomites may be hydrologically connected to the upper sand and gravel aquifers, both of which are recharged directly by seepage from precipitation events. This makes the shallow aquifers more susceptible to impacts from the AHML site. Groundwater from the Silurian dolomite aquifer may also be used a potable water source. However, most potable water in the Chicago area is supplied by Lake Michigan.

The shallow aquifers are separated from the Cambrian-Ordovician Aquifers by the relatively impervious Maquoketa Group Shale. The Cambrian-Ordovician Aquifers are confined aquifers much less susceptible to contaminants from the AHML site. Water supply wells commonly installed in the Cambrian-Ordovician Aquifers include municipal, industrial, and private wells. The Mt. Simon Sandstone and basal unit of the Eau Claire Formation are separated from the Cambrian-Ordovician aquifers by shaly and silty beds of the Eau Claire Formation. Groundwater use from the deeper Mt. Simon and basal sandstone of the Eau Claire Formation is typically for municipal and industrial purposes. Water supply wells from the aquifers below the Maquoketa Group Shale range from approximately 500-2000 feet in depth. The Arlington Heights emergency well located on the AHML site is listed as 1795-feet deep and is within the basal Eau Claire sandstone.

Arlington Heights municipal water supply system currently obtains water from Lake Michigan surface water intakes. Arlington Heights has six active emergency backup wells that may be used as a potable source if necessary ([Figure-4](#)). The backup wells are sampled every three years for Volatile Organic Compounds (VOCs), inorganic, and radiologic parameters. The six emergency backup wells range in depth from 1,532-feet to 1,801-feet. These wells have been installed in the Eau Claire basal sandstone formation. Well #13 is located on the AHML property along with two large above ground holding tanks. Provided that the well casing is properly cemented, contaminants within the shallow aquifers (if present) pose little threat to the water supply well. The AHML site is located within the setback zone of the well.

Section 2.2 Site History

In approximately 1967, the Village of Arlington Heights purchased the AHML property, which at the time consisted of an abandoned gravel pit. In February 1968, the Village submitted a “Registration of Refuse Disposal Site Sanitary Landfill” to the Illinois Department of Public Health (IDPH). Although the actual dates are unclear from historical documents, the AHML site appears to have received municipal wastes from the Village between 1968 and 1974. The Village submitted an “Application for Registration of Refuse Disposal Site or Facility” to the IDPH on September 12, 1969, and subsequently to the Illinois EPA on December 15, 1971 ([Illinois EPA BOL File, 2017](#)). Pursuant to the Illinois Environmental Protection Act of 1970,

all solid waste disposal sites currently registered with the IDPH were required to apply for an operating permit from the Illinois EPA. In February 1972, the Village submitted an "Application for Permit to Continue Operation of a Solid Waste Disposal Site" to the Illinois EPA. The application indicated that residential, commercial, and industrial wastes were placed in the landfill, and that liquid wastes such as paints, oil, etc., were also received but in much smaller quantities. The operating permit application was denied by the Illinois EPA in March 1972, requesting that additional information be provided. In late 1972, a municipal water supply well (well #13) was installed on the property and a water department booster station was constructed. The booster station included a 6-million-gallon water reservoir. On June 19, 1973, the Village stated that the landfill stopped accepting sanitary waste on June 1, 1973 but would continue to accept solid fill materials from the Village such as concrete, clay, gravel, and asphalt. Solid fill material from the Village was reported to have ceased in August 1976. However, Illinois EPA inspection reports suggest that solid materials were received at the site until approximately April 1989.

In August 1986, closure plans for the landfill were submitted to the Illinois EPA. The landfill was to be capped with at least two feet of clay using excavated material from the McDonald Creek Flood Control Project in Arlington Heights. There is no indication that any on site contaminated soil or hazardous material was excavated. Plans for redevelopment of the property included a winter sports complex, a shooting range, or a combination of the two. In February 1987, an "Addendum to the Master Plan", prepared by Stanley Consultants, was submitted which called for the construction of a 9-hole golf course on top of the landfill following closure of the landfill. In September 1988, the Village submitted a Closure/Post Closure Plan and Application to the Illinois EPA. The Closure Plan indicated that the landfill would be capped with two feet of compacted clay, followed by five feet of traffic compacted soil, followed by four inches of top soil. This material was excavated from the reservoir area for the McDonald Creek. The Closure Plan also included a September 1988 Environmental Assessment Report completed by Harza Environmental Service, Inc. The September 1988 Environmental Assessment included the installation and sampling of eight monitoring wells ranging in depth from 20-48 feet. Finally, on August 3, 1989, following the receipt of certification of completion of closure/post closure care requirements, the Illinois EPA determined that the site was closed as of December 31, 1982, and that closure/post closure care

requirements had been met as of December 31, 1985. Construction of the 9-hole golf course began in May 1993. The 9-hole Nickol Knoll Golf Course is still present and in use at the AHML site.

Section 2.3 CERCLA Investigative History

The AHML site was initially placed on the Superfund Enterprise Management System (SEMS), formerly the Comprehensive Environmental Response, Compensation, and Liability Information System or CERCLIS on January 28, 1986, as a result of discovery action initiated by the State of Illinois. The AHML has been listed three times in SEMS, under identification number ILD 980612543 (preliminary assessment with no further remedial action planned status in 1987) and ILD 981193428 (site inspections with high priority in 1988). The current identification number is ILD 984781526.

A Preliminary Assessment (PA) dated April 22, 1986 was completed by the Illinois EPA on June 21, 1986. The PA recommended a low priority status for the site but indicated completion of a landfill cap was warranted. A second PA for the site dated April 28, 1987 was performed by the Illinois EPA under a "No Named" title (but referenced the AHML) in response to a 103(c) Notification filed by the Arc Disposal Company which appears to have disposed of waste at the landfill for the Village of Arlington Heights.

In October 1987, Ecology and Environment, Inc. (E&E) conducted a Site Investigation of the AHML site. Five surface soil samples were collected at the site. The results of the site investigation were documented in a January 28, 1988 Site Inspection (SI) Report completed by E&E. Metals were detected in soil samples at levels comparable to background concentrations. Polyaromatic Hydrocarbons (PAHs) were detected in soil samples; however, the highest concentrations were detected in the background sample.

In February 1989, the Illinois EPA responded to a complaint that leachate from the landfill had accumulated in a nearby Illinois Bell Telephone Company vault. A sample collected from the water in the vault contained concentrations of Volatile Organic Compounds (VOCs) including benzene, toluene, xylenes, and various chlorinated VOCs. Four of the compounds present in the vault sample were also present in a leachate sample collected from the landfill in

1984. In response to the complaint and vault sample result, the site was again listed on CERCLIS in February 1990. Another PA was completed by the Illinois EPA in September 1990. The site received a medium priority rating with a recommendation for a Site Screening Inspection (SSI).

In November 1995, a Focused Site Inspection Prioritization (FSIP) Report was completed for the U.S. EPA by Black and Veatch Waste Science, Inc. Two groundwater (from on-site monitoring wells), four surface water, five sediment, and three soil samples were collected in April and May of 1993. Arsenic was detected in the groundwater release sample at a significant concentration, but was below the Maximum Contaminant Level (MCL) for drinking water of 10 ug/L. Twelve inorganic compounds were detected in surface water release samples at significant concentrations. Two semi-VOCs, three pesticides, and five inorganic compounds were detected in sediment release samples at significant concentrations. A Site Priority Recommendation prepared on August 31, 1993 recommended further investigation of the AHML based on the results of the groundwater, surface water, sediment, and soil sampling results taken in April and May of 1993. Since the FSIP, there have been no further investigations. However, eight monitoring wells were installed as part of the landfill closure/post closure plan. Upon completion these wells were sampled and analyzed for three physical parameters including total organic carbon, total organic halogens, and six inorganic parameters. No documentation has been found of complete inorganic and organic analysis of samples from these monitor wells.

Section 3.0 Other Cleanup Authority Activities

Illinois EPA records document inspections of the AHML dating back to July 1970 ([Illinois EPA BOL File, 2017](#)). Illinois field operations staff performed inspections 2-6 times a year from 1970 to 1983 although the landfill stopped receiving municipal refuse in 1974. The majority of violations documented on the inspection reports included blowing trash, inadequate daily cover, exposed waste, operating a solid waste landfill without a permit, leachate seeps, and open dumping. In December 1975, approximately 100 empty drums were observed on site near the water storage tanks. In February 1976, an Illinois EPA inspector noticed drums being buried on site. A film was observed in an area of standing water near where the drums were being

covered. According to the Village public works director most of the drums were empty and were labeled “AERO Shell Fluid #4 and Dupont Flour Carbon TF & TC Solvent a Light Cy Oil”. Forty drums with unknown liquid were disposed of at Lake Landfill Inc., which was permitted to accept the waste. It is unknown what occurred with the other sixty drums.

Leachate seeps were routinely observed at the site through 1984 when final cover activities became a priority. Leachate seeps were noted on the east, north, south and southwest portions of the site. Leachate was observed flowing into the on-site pond on multiple occasions. In August 1984, the Illinois EPA collected a sample from a leachate seep. The leachate seep sample contained nine VOCs. Seven with concentrations above current Illinois EPA groundwater remediation objectives.

In September 1988, Harza Environmental Services completed an Environmental Assessment of the AHML for the Village as part of the closure/post closure requirements. Eight monitoring wells were installed around the perimeter of the site. The wells range from 20-48 feet in depth. In August 1989, the IEPA approved the closure/post closure plan prepared by Harza Environmental Services for the Village of Arlington Heights.

Section 4.0 Pathway Discussion

The CERCLA Hazardous Ranking System (HRS) identifies three migration pathways and one exposure pathway that require evaluation during site assessments. Sites are evaluated on the known or potential impact that these pathways have on human health and the environment. The following paragraphs will evaluate the groundwater, surface water, soil exposure, and air migration pathway.

Section 4.1 Groundwater Migration Pathway

Groundwater can be obtained from four major aquifers in the region: (1) sand and gravel lenses within the glacial drift; (2) the Silurian dolomite aquifer; (3) the Cambrian-Ordovician aquifers, which include the Ironton-Galesville and Glenwood-St. Peter Sandstones; and, (4) the Mt. Simon Sandstone and the basal sandstone of the Eau Claire Formation ([Willman, 1971](#)). These aquifers are discussed in greater detail in Section 2.1.

The primary source of potable water in Arlington Heights is from Lake Michigan. Groundwater within the shallow sand and gravel aquifers may be used as a potable source; however, the sand and gravel deposits are regionally discontinuous, have limited yields, and are more susceptible to contamination. Sand and gravel formations were encountered in all the borings installed on the property which contains the landfill. The thickness of the sand and gravel unit varies across the site and ranges from 1.5-feet to 12-feet in thickness. Wells installed in the sand and gravel formation near the site would be the most susceptible to contamination from the landfill. Geographical Information System (GIS) Databases indicate only one private well less than 100 feet deep may be located within one mile of the site ([Illinois EPA, SWAP, 2017](#)). This private well is located on site near the above ground water tanks. GIS database information indicates only 51 private wells out of 1,660 may exist at a depth of less than 100-feet within the 4-mile Groundwater Target Distance Limit (TDL).

The second uppermost Silurian dolomite aquifer is present at depths greater than 100-feet and may be 230-500 feet in thickness. Groundwater within the Silurian dolomites may be hydrologically connected to the upper sand and gravel aquifers, both of which are recharged directly by seepage from precipitation events. This makes the shallow aquifers more susceptible to impacts from the AHML site. GIS databases indicate the majority of private wells within the groundwater TDL withdraw water from the Silurian dolomite aquifer. Active private wells installed in the Silurian dolomite could be located within 0.5-miles of the site.

The shallow aquifers are separated from the Cambrian-Ordovician Aquifers by the relatively impervious Maquoketa Group Shale. The Cambrian-Ordovician Aquifers are confined aquifers much less susceptible to contaminants from the AHML site. The Mt. Simon Sandstone and basal unit of the Eau Claire Formation are separated from the Cambrian-Ordovician aquifers by shaly and silty beds of the Eau Claire Formation. Water supply wells from the aquifers below the Maquoketa Group Shale range from approximately 500-2000 feet in depth. The Arlington Heights emergency well #13, located on the AHML site, is listed as 1795-feet deep and is within the basal Eau Claire sandstone.

The Arlington Heights municipal water supply system obtains water from Lake Michigan surface water intakes. Arlington Heights has six active emergency backup wells that may be used as a potable source if necessary. According to Arlington Heights water production foreman,

Mr. Todd Horndasch, the six emergency wells are pumped to waste and sampled monthly. The emergency wells have not been used as a potable water source since 1985 when the Village switched its drinking water source to Lake Michigan. These wells have been installed in the Eau Claire basal sandstone formation with depths ranging from 1,532-feet to 1,801-feet. Well #13 is located on the AHML property and is cased through the Maquoketa Shale. Provided that the well casing is properly cemented, contaminants within the shallow aquifers (if present) pose little threat to the water supply well. The AHML site is located within the setback zone of well #13. All six of the wells are maintained and sampled periodically per Illinois EPA requirements. Well #13 was tested for VOCs in January of 2016 and 2017 and was found not to contain any VOCs analyzed above the laboratory reporting limit.

The Village restricts groundwater use through eight ordinances which “prohibit the use of groundwater as a potable water supply by the installation or use of potable water supply wells or by any other method (IEPA Groundwater Ordinance Status)”. However, the eight ordinances are only for limited areas of the village and none of the ordinances pertain to the area where the site is located. According to the Superintendent of Utilities, Mr. Jeff Musinski, private water supply wells may exist within the Village of Arlington Heights since there is no requirement to hook up to the public water supply system. The number of active private wells is believed to be a very small percentage of the total population within Arlington Heights.

According to Illinois EPA resources ([Illinois EPA, SWAP, 2017](#)) there are approximately 38 active and 114 inactive community water supply (CWS) wells within the 4-mile groundwater TDL of the site ([Figure-5](#)). Of the 38 active wells, there are four municipal CWS wells within one mile of the site. These wells are greater than 1,300-feet in depth and are used by three different municipalities (Arlington Heights, Buffalo Grove, and Palatine) to serve as emergency back-up wells. No other CWS wells exist within one mile of the site. The remaining 34 CWS located outside of the 1-mile radius are owned by municipalities, community subdivisions, and nursing home facilities. GIS databases indicate approximately 82 non-community water supply wells and 1,660 private water supply wells are located within the 4-mile groundwater TDL. GIS databases indicate the nearest private water supply well is located on the AHML site and is 47 feet in depth. The next closest private well is located approximately 0.23-miles northwest of the site.

The following table summarizes the potential drinking water population within the 4-mile TDL based on known well locations. Number of individuals is calculated using the number of wells times the average household population in Arlington Heights, IL. It is assumed that most, if not all residents, use municipal water supplied by Lake Michigan. However, there is no requirement to hook up to the municipal water supply. Therefore, some residents may be using well water.

ESTIMATED GROUNDWATER USAGE POPULATION

Distance Category (miles)	ISGS Well Population (wells/individuals)	Non-Community Water Supply Population (well/workers)	Community Water Supply Population (wells/individuals)	Total Population (individuals)
0 – ¼	3 / 8	0	1 / 0 ¹	8
¼ - ½	8 / 21	0	0	21
½ - 1	54 / 138	2 / 150	3 / 0 ¹	288
1 – 2	436 / 1112	11 / 2048	118 / 425 ^{1,2}	3585
2 – 3	565 / 1441	35 / 7961	12 / 61 ¹	9463
3 – 4	1660 / 4233	34 / 3503	34 / 4492 ¹	12228

Population calculated using an Arlington Heights average household population of 2.55, as established by the U.S. Census Bureau (U.S. Census Bureau Website), and information from the Illinois EPA databases.

1 – Entry contains municipalities serviced by Lake Michigan surface water intakes but have emergency backup wells, community water supply wells utilizing confined aquifers below aquifers evaluated for this pathway, contains proposed wells, abandoned wells, or inactive wells.

2 – Entry contains 102 inactive wells as part of the Bourbon Square Apartments system.

An observed release to the groundwater migration pathway was documented in the 1995 FSIP based on the presence of arsenic at a concentration significantly above background in one of the on-site monitoring wells. It should be noted however, that the concentration detected at 3 ug/L was below the Federal Maximum Contaminant Level (MCL) of 10 ug/L, and that arsenic is a natural occurring compound. In addition, recent ground water samples collected in 2015 from community water supply well #13, located on site, indicated that arsenic concentrations were below the level of detection, 1 ug/L (Illinois Drinking Water Watch).

Section 4.2 Surface Water Migration Pathway

Due to the topography of the AHML site, runoff from site flows in multiple directions. Runoff from the eastern portion of the site flows to a low lying grassy area at the flank of the eastern slope (formerly a continuation of N. Kennicott Avenue). Storm water from this area is handled by storm water sewer drains located on N. Kennicott Avenue. Runoff from the north side of the site flows to storm drains located on Nichols Road. Runoff from the east side of the site flows to a ditch that feeds into the pond located on the northwest corner of the site. Runoff from portions of the northwestern corner of the site also collects in a large pond. Overflow from the pond discharges to Buffalo Creek via an overflow pipe. Presently, the pond has no observed leachate. The pond is also free of odors such as methane.

The point where the overflow discharges to Buffalo Creek serves as the Probable Point of Entry (PPE) for the surface water pathway ([Figure-5](#)). From the PPE, Buffalo Creek flows approximately 0.67-miles to the north before turning east through ponds at the Buffalo Creek County Forest Preserve. From the Forest Preserve, Buffalo Creek flows east/southeast to the Wheeling Drainage Ditch 4.2-miles from the PPE. The Wheeling Drainage Ditch flows another 3.6-miles to the east/southeast before discharging into the Des Plaines River 7.8-miles from the PPE. The remaining 7.2-miles of the 15-mile surface water TDL continues south on the Des Plaines River to a location near Big Bend Lake. The AHML site is not located within a 500-year flood plain.

Buffalo Creek, the Wheeling Drainage Ditch, and the Des Plaines River are identified on topographic maps as perennial water ways and thus considered portions of the in-water segment of the surface water pathway. Mean average flow for Buffalo Creek is 18 cubic feet per second ([USGS National Water Information System, 2017](#)). Mean average flow for the Des Plaines River is 481 cubic feet per second. No surface water intakes are located within the 15-mile surface water pathway TDL. Approximately 6.34-miles of wetland frontage is present within the 15-mile TDL ([Illinois EPA, SWAP, 2017](#)). The pond located on site is listed as an Excavated Palustrine Unconsolidated Bottom Pond.

The 1995 FSIP states that recreational fishing occurs in Buffalo Creek and the Wheeling Drainage Ditch. Resources available through the IDNR identify the Des Plaines River as a recreational fishery ([IDNR, 5-96](#)). According to the IDNResources EcoCAT database, 18

protected species of plants and animals may be located within the 15-mile TDL. Of these species seven are animals and eleven are plants. Eleven are listed as endangered and seven are listed as threatened. There are no protected species within the immediate vicinity of the site ([IDNR EcoCAT, 2018](#)).

Four surface water samples and five sediment samples were collected in April and May of 1993 as part of the FSIP investigation. The samples collected in 1993 are the most recent sediment and surface water samples available. Surface water and sediment samples were collected from the on-site pond and Buffalo Creek. A surface water and sediment sample from an upstream location in Buffalo Creek was used as a background sample for both the pond and Buffalo Creek. A surface water sample from the on-site pond contained 12 metals, four of which (aluminum, copper, iron, and lead) exceeded environmental surface water Superfund Chemical Data Matrix (SCDM) concentrations. Only five of the 12 metals detected in the surface water sample from the pond were also detected in a surface water sample collected from the outflow pipe of the pond that discharges to Buffalo Creek. A surface water sample from Buffalo Creek downstream of the PPE contained arsenic, lead, and nickel at concentrations significantly above background. Only the lead concentration of 3 ug/L exceeded an environmental surface water SCDM. Concentrations of arsenic, lead, and nickel could be attributable to the site based on their presence in the on-site pond surface water sample and the downstream Buffalo Creek sample.

Two sediment samples were collected from the on-site pond and three sediment samples were collected from Buffalo Creek. An upstream sediment sample from Buffalo Creek was used as the background sample for both the pond and Buffalo Creek sediment samples. Two Polycyclic Aromatic Hydrocarbons (PAHs), two pesticides, and three metals were detected in the on-site pond sediment samples at significant concentrations. Fluoranthene, 4,4-DDE, and 4,4-DDD were detected in the downstream Buffalo Creek sediment sample at concentrations significantly above background. Only fluoranthene and 4,4-DDE was detected in both the pond and Buffalo Creek at significant concentrations. The 4,4-DDE sample concentration exceeded the Human Food Chain surface water pathway SCDM in both the pond and Buffalo Creek sediment samples. None of the compounds referenced above were detected in the on-site soil samples at concentrations significantly above background.

Section 4.3 Soil Exposure Pathway

During the FSIP investigation, three soil samples, ranging in depth from 0-6 inches, were collected and sampled for inorganic analysis. Organic samples were also taken but exceeded acceptable temperature limits during transport to the laboratory and had to be re-sampled. The soil samples were analyzed for organic and inorganic compounds. No soil parameters were determined to be at significant levels.

Areas of the site that received waste were covered with at least two feet of compacted clay, followed by five feet of traffic compacted soil, followed by four inches of top soil. During construction of the golf course, an additional 1.5 million cubic yards of soil was used to cover the site. Cover material ranges from 5-80 feet thick throughout the site. The highest point on the site is approximately 76-feet above the northwest corner. Currently, the surface of the site has a well-established vegetative surface, no waste material is exposed, and there are no visible leachate seeps. Current site conditions indicate that exposure to contaminants through the soil exposure pathway is unlikely.

Section 4.4 Air Migration Pathway

Waste material placed at the AHML site was covered by two feet of compacted clay, five feet of compacted soil, and four inches of top soil as part of the landfill closure activities. An additional 5-80 feet of soil was placed across the site during construction of the golf course that currently occupies the site. The vast majority of the site is either covered by vegetation, buildings, or pavement, reducing the potential for airborne distribution of contamination potentially remaining on site. No exposed waste material was observed during a reconnaissance of the site. No air samples have been collected during previous investigations of the site. An observed release to the air migration pathway has not been documented by direct observation or by chemical analysis.

Section 5.0 Summary and Conclusions

The purpose of this investigation was to determine if the AHML site warrants further evaluation by the CERCLA Site Assessment program. The primary objective of a Site Reassessment is to gather necessary information needed to evaluate the extent that a site presents a threat to human health and/or the environment. The AHML was selected to be investigated due to past activities which have occurred at the site and the possible release of contaminants to the environment.

The property was operated by the Village of Arlington Heights as a municipal landfill from approximately 1968 to 1974. The AHML site was initially placed on SEMS, formerly CERCLIS on January 28, 1986, as a result of a discovery action initiated by the State of Illinois. Three Preliminary Assessments (PAs) were conducted by the Illinois EPA in 1986, 1987, and 1990. Ecology and Environment, Inc. (E&E) conducted a Site Inspection (SI) in October 1987 for U.S. EPA. In September 1995, a Focused Site Inspection Prioritization (FSIP) Assessment was completed by Black and Veatch Waste Science, Inc. for U.S. EPA. The FSIP was the last CERCLA activity to occur.

In September 1988, Harza Environmental Services completed an Environmental Assessment of the AHML for the Village as part of the closure/post closure requirements. Eight monitoring wells were installed around the perimeter of the site. In August 1989, the IEPA approved the closure/post closure plan prepared by Harza Environmental Services for the Village of Arlington Heights. The landfill was to be capped with at least two feet of compacted clay, followed by five feet of traffic compacted soil, followed by four inches of top soil. This material was excavated from the reservoir area for the McDonald Creek.

In 1997, an "Addendum to the Master Plan", prepared by Stanley Consultants was submitted which called for the construction of a 9-hole golf course on top the landfill following the closure of the landfill. Construction of the 9-hole golf course began in May 1993. The 9-hole Nickol Knoll Golf Course is still present and in use at the AHML site.

Contaminated groundwater, surface water, sediment, and soil are a concern at the property based on past environmental sampling. However, a landfill closure plan was approved by Illinois EPA and a cap was put in place which consisted of compacted clay, compacted soil,

and top soil. An additional 1.5 million cubic yards of soil was used during construction of the golf course. Cover material ranges from 5-80 feet thick throughout the site. Most of the property is covered with vegetation, buildings, and concrete/pavement. There is also no waste material exposed and no visible leachate seeps are present. Currently site conditions make exposure to contaminants unlikely.

Additionally, the residents of Arlington Heights, as well as other surrounding municipalities, obtain drinking water from Lake Michigan. There are six emergency wells located in the Village of Arlington Heights which are present to serve the residents if water from Lake Michigan were unavailable. These standby wells are located in deep aquifers at depths of at least 1,500-ft. The deep aquifers are separated from the shallow aquifers by a relatively impermeable layer of shale, making the deep aquifers more confined and less susceptible to contaminants. The standby wells are also pumped to waste and sampled monthly. Recent sampling indicates that there is no present contamination of the standby wells, including well #13 which is located on site. The Village has not actively used these wells for drinking water since the mid-1980s when they switched their drinking water source to Lake Michigan. The Village has eight active groundwater ordinances which restrict groundwater use but only in certain areas of the Village. There is no requirement for residents to connect to the public water supply system. Therefore, private water supply wells may exist within the Village since there is no requirement to hook up to the public water supply system. However, the number of active private wells is believed to be a small percentage of the total population within Arlington Heights.

Section 6.0 References

- (ISGS, 1979) – Illinois State Geological Survey, *Quaternary Deposits of Illinois*, Compiled by Jerry A. Lineback.
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- (Illinois EPA BOL File, 2017): Illinois Environmental Protection Agency, Bureau of Land; File for LPC# 0310090001 (Arlington Heights Municipal Landfill), File accessed in 2017.
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- (IDNR, 5-96): *Illinois Fishing Guide*, Illinois Department of Natural Resources Division of Fisheries, X42604 117M 5-96.
- (Illinois EPA, Office of Site Evaluation Web Application, 2016) Illinois Environmental Protection Agency. Site Evaluation Web Application. 2010 U.S. Census Block Centroid Populations representing the populations of Illinois. The data set is located on an internal GIS Spatial Database Engine at: <http://epa084pgis02.illinois.gov/Apps/OSE/> Accessed August 2017.
- (USGS National Water Information System, 2017) – United States Geological Survey, National Water Information System: Web Interface at:
<https://waterdata.usgs.gov/il/nwis/current/?type=flow>, Accessed August 2017.

(IDNR EcoCAT, 2018) – Illinois Department of Natural Resources, The Ecological Compliance Assessment Tool (EcoCAT) website at:

<https://www.dnr.illinois.gov/programs/EcoCAT/Pages/default.aspx>

Figure 1
Arlington Heights Municipal Landfill
Site Location Map

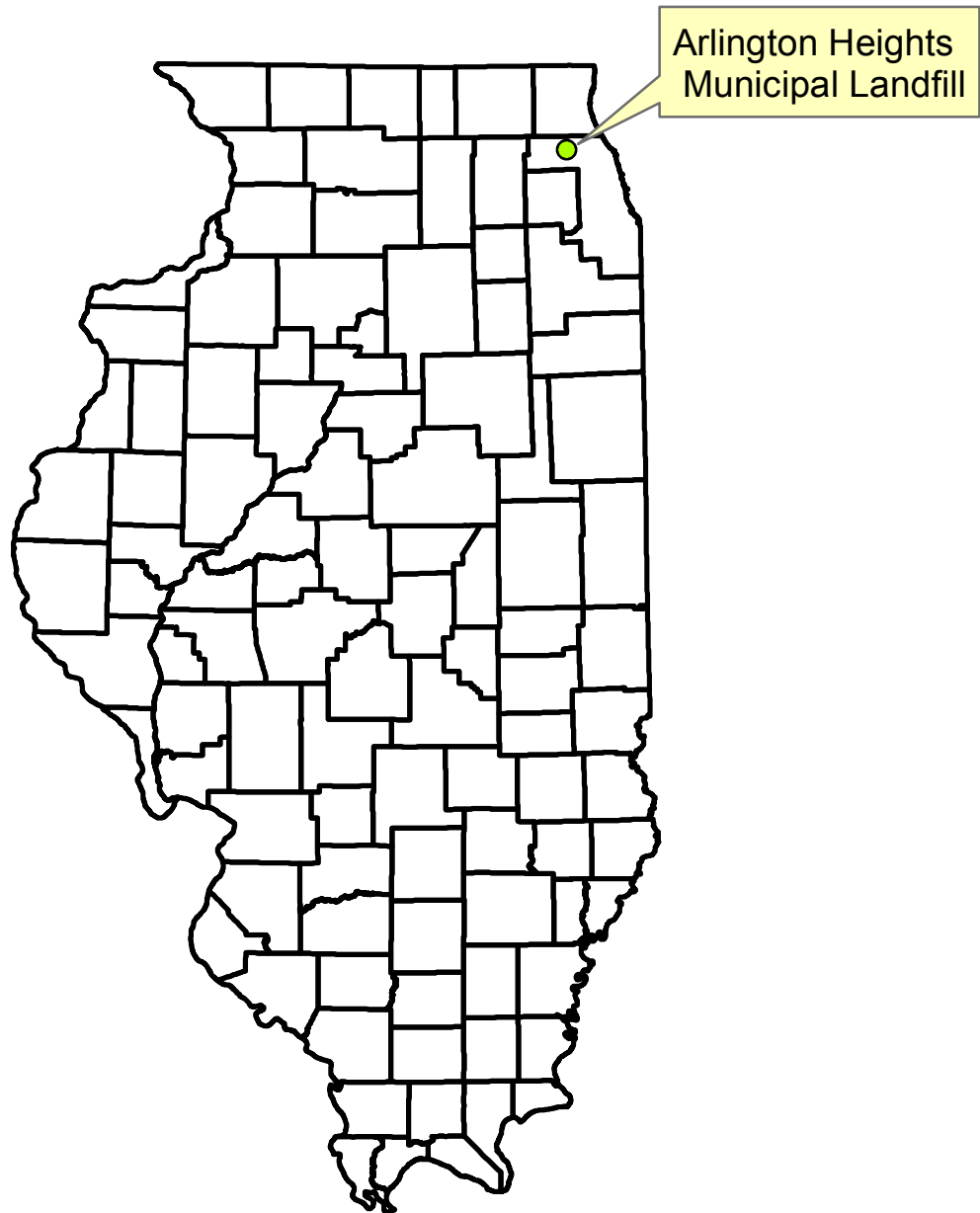


Figure 2
Arlington Heights Municipal Landfill
and Surrounding Area Map (2005)



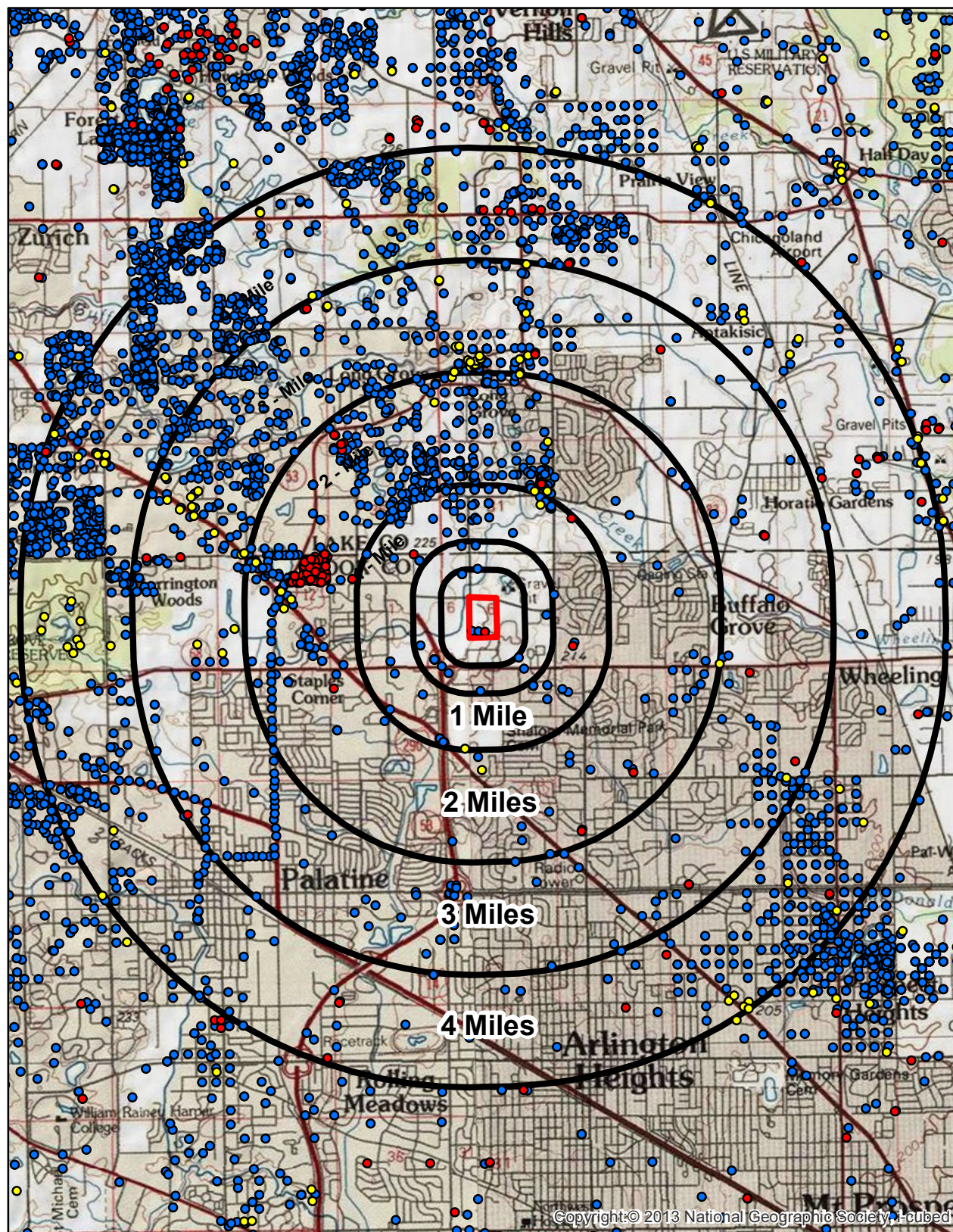
Figure 3
Arlington Heights Municipal Landfill
Property Map (2005)



0 0.025 0.05 0.1 Miles



Figure 4
4 - Mile Radius Map
Arlington Heights Municipal Landfill
Area Groundwater Wells



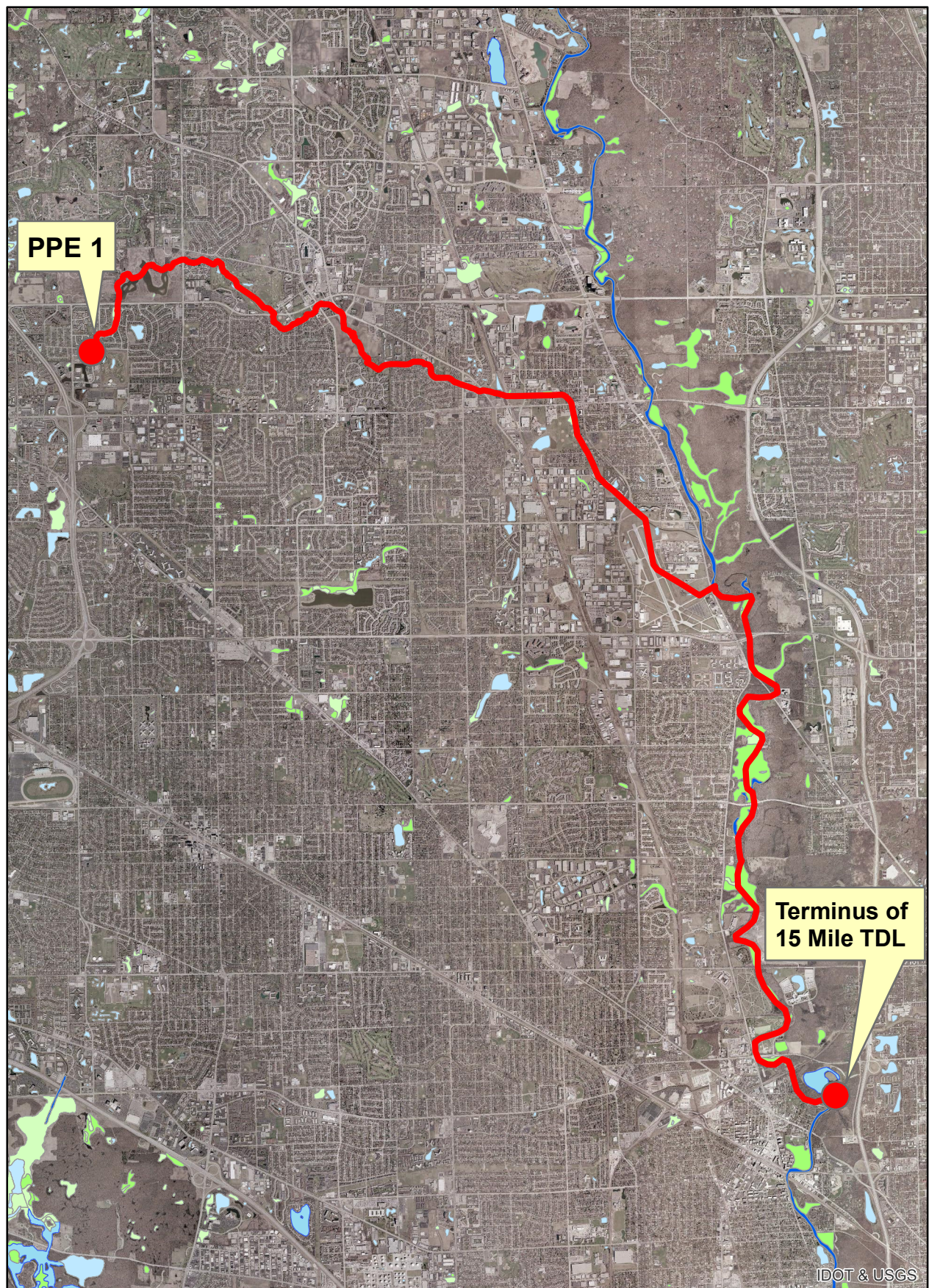
Well Type

- CWS Wells
- NonCWS Wells
- IGS Database Wells

0 1 2 4 Miles



Figure 5
15 Mile TDL and Wetlands



0 1 2 4 Miles



SITE NAME: Arlington Heights Municipal Landfill
CERCLIS ID: ILD 984 781 526 COUNTY: Cook



DATE: 11/16/2017
PHOTO BY: Jim Salch
COMMENTS: Photo taken of golf course greenery near on-site pond



DATE: 11/16/2017
PHOTO BY: Jim Salch
COMMENTS: Photo taken of on-site pond on the northwest side of the property



DATE: 11/16/2017

PHOTO BY: Jim Salch

COMMENTS: Photo taken of two on-site water storage tanks located on the southwest side of the property



DATE: 11/16/2017

PHOTO BY: Jim Salch

COMMENTS: Photo taken of fire training building located on the southwest side of the property